WHAT IS CLAIMED IS:

1. A continuously variable transmission apparatus, comprising:

an input shaft;

a toroidal-type continuously variable transmission disposed concentrically with the input shaft;

a first rotation transmission shaft disposed in parallel to the input shaft;

a first planetary-gear-type transmission disposed on the periphery of the first rotation transmission shaft so as to be concentric with each other, the first planetary-gear-type transmission including a first ring gear;

a second planetary-gear-type transmission disposed on the periphery of the first rotation transmission shaft so as to be concentric with each other, the second planetary-gear-type transmission including a second carrier;

a second rotation transmission shaft disposed in parallel to the input shaft and the first rotation transmission shaft;

an output shaft disposed concentrically with the first rotation transmission shaft;

a first power transmission mechanism for transmitting the rotation of the input shaft to the first ring gear of the first planetary-gear-type transmission;

a second power transmission mechanism for transmitting

the rotation of the input shaft through the second rotation transmission shaft to the second carrier of the second planetary-gear-type transmission; and,

a switching mechanism for switching power transmission states between the input shaft and the output shaft through the first and second power transmission mechanisms over to each other,

wherein, in a state where the power transmission through the first power transmission mechanism is allowed and the power transmission through the second power transmission mechanism is cut off, in accordance with the control of the transmission ratio of the toroidal-type continuously variable transmission, the output shaft be stopped while leaving the input shaft rotating.

2. A continuously variable transmission apparatus as set forth in Claim 1, wherein the first and second planetary-gear-type transmissions are respectively of a single pinion type,

the toroidal-type continuously variable transmission comprises;

an input side disk rotatable together with the input shaft;

an output side disk supported so as to be concentric with the input side disk and rotated with respect to the

input side disk;

a plurality of power rollers respectively interposed between the input side disk and the output side disk; and

a third power transmission mechanism for allowing the output side disk to drive and rotate the first rotation transmission shaft,

the first planetary-gear-type transmission comprises;

a first sun gear rotatable together with the first rotation transmission shaft;

a first ring gear rotatably supported on the periphery of the first sun gear;

a first carrier supported so as to be concentric with the first sun gear and the first ring gear and can be rotated with respect to the first sun gear and the first ring gear; and,

a plurality of first planetary gears meshingly engaged with the first sun gear and the first ring gear while they are respectively rotatably supported on the first carrier,

the second planetary-gear-type transmission comprises:

a second sun gear rotatable together with the first rotation transmission shaft;

a second ring gear rotatably supported on the periphery of the second sun gear and rotatable together

with the first carrier;

a second carrier supported so as to be concentric with the second sun gear and the second ring gear and rotated with respect to the second sun gear and the second ring gear; and,

a plurality of second planetary gears meshingly engaged with the second sun gear and the second ring gear while they are respectively rotatably supported on the second carrier, and

the first power transmission mechanism is used to transmit the rotation of the input shaft to the first ring gear, the second power transmission mechanism is used to transmit the rotation of the input shaft through the second rotation transmission shaft to the second carrier, and the switching mechanism allows execution of the power transmission through one of the first and second power transmission mechanisms and cuts off the power transmission through the other power transmission mechanism, in a state where the switching mechanism allows execution of the power transmission through the first power transmission mechanism and cuts off the power transmission through the second power transmission mechanism, in accordance with the control of the transmission ratio of the toroidal-type continuously variable transmission, the output shaft is stopped while leaving the input shaft rotating.

3. A continuously variable transmission apparatus as set forth in Claim 2, wherein, in case where the reduction ratio of the first power transmission mechanism from the input shaft to the first ring gear is expressed as $R_{IPG}$, the reduction ratio of the third power transmission mechanism from the output side disk to the first sun gear is expressed as $R_{OPG}$, and the ratio of the teeth number of the first ring gear with respect to that of the first sun gear is expressed as $i_1$, $(R_{OPG} / R_{IPG}) \cdot i_1$ is the transmission ratio that is realized by the toroidal-type continuously variable transmission.

4. A continuously variable transmission apparatus as set forth in Claim 3, wherein there is satisfied the relationship, that is, $0.4 < (R_{OPG} / R_{IPG}) \cdot i_1 < 2.5$.

5. A continuously variable transmission apparatus as set forth in Claim 3, wherein the reduction ratio of the second power transmission mechanism from the input shaft to the second carrier is larger than the reduction ratio of the first power transmission mechanism from the input shaft to the first ring gear.

6. A continuously variable transmission apparatus as set forth in Claim 2, wherein the switching mechanism comprise a low-speed clutch to be connected when realizing a low speed

mode for stopping the output shaft while the input shaft is left rotating, and a high-speed clutch to be connected when realizing a high speed mode usable only in the advancing state; and also

wherein the low-speed clutch is disposed in series in the intermediate portion of the first power transmission mechanism, and the high-speed clutch is disposed in series in the intermediate portion of the second power transmission mechanism.